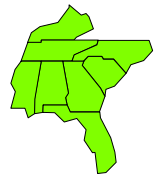




ENVIRONMENTAL MONITOR



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Fall 1999

governor recognizes Military for Pollution Prevention Excellence in Georgia

By Traci Muller, AEPI

Recognizing pollution prevention efforts and strengthening the lines of communication was the aim of the Georgia Military Forum held September 29 at the James H. "Sloppy" Floyd Veterans Memorial Building in Atlanta.

Hosted by the Southern Regional Environmental Office (SREO) and the Georgia Pollution Prevention Assistance Division (P2AD), the forum was held in conjunction with the Governor's annual Pollution Prevention Award Program. Participants included DoD commanders and managers from around the state, regulatory officials from the Environmental Protection Agency (EPA) and Georgia's Environmental Protection Division (EPD), and a number of other guests.

G. Robert Kerr, P2AD Director, kicked off the event and Georgia Dept. of Natural Resources Commissioner Lonice Barrett welcomed guests. Speakers included Mr. Ray Fatz, Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health (DASA (ESOH)), attending as the DoD Executive Agent for Regional 4, and FORSCOM Deputy Chief of Staff for Personnel and Installation Management (DCSPIM) Major General Geoffrey Miller.

Mr. Fatz spoke favorably of the P2 partnerships

formed in Georgia. "We'd like to bring partnerships across all states," he said. "They can do a lot to help."

Military Affairs Coordinating Committee Executive Secretary John Nino emphasized the economic impact of the military. "Georgia ranked fifth in 1998 in revenue derived from DoD," he said. "\$8 billion flowed from DoD to Georgia."

He also pointed out the fact that Georgia is home to an estimated 62,000 active duty military, not to mention 69,000 family members. Add to that approximately 684,000 veterans.

"Overall, there is a \$15 billion impact on Georgia's economy from the military," he said. "At Fort Gillem alone, it's \$400 million and at Robins, it's \$2.5 billion."

Georgia EPD Director Harold Reheis highlighted emerging environmental issues and trends.

"Environmental quality has become a core American value in the last 30 years," he said. "Almost as strong as those of freedom and liberty. It is a trend that has become a reality."

Reheis noted that the public is more aware of environmental issues than ever before, and they are making their voices heard. He pointed to a 1996 survey that found

(Continued on page 7)



GA Gov. Roy Barnes (End-R) and GA DNR Comm. Lonice Barrett (End-L) present Mr. Gregg Beecher, Acting Director Environmental Management, Robins AFB (Center-L) and BG William Wilson, Vice Commander, Robins AFB (Center-R) with the 1999 Governor's Award in the Government/Academia category for Pollution Prevention.

Inside...

- Page 2 For Your Calendar
- Page 3 "A Regional
Perspective"
- Page 4 Federal Headlines
- Page 9 Success Stories



FOR YOUR CALENDAR

4th Annual Joint Services Pollution Prevention/Hazardous Waste Management Conference & Exhibition, December 6-9, 1999: The Annual Joint Services Pollution Prevention Conference and Exhibition Offers:

- A National Forum for Exchanging Ideas
- Success Stories
- Case Histories
- Technologies related to Pollution Prevention
- And, for the first time, Hazardous Waste Management

This conference, hosted annually by the Air Force Center for Environmental Excellence, crosses Federal, DoD, Academia and industry boundaries, opening channels for a combined effort to implement the essential pollution prevention and hazardous waste objectives shared by all. All this while still retaining a focus on base-level applications. This year the conference will be held 6-9 December 1999, at the Henry B. Gonzalez Convention Center in San Antonio, Texas. Next year the conference will return to its original time 21-24 August, 2000. All logistical support is provided by the National Defense Industrial Association. Register at <http://www.ndia.org/interview/register.ndia?~Brochure~040>. AFCEE Contacts Ms. Miriam E. Ortiz Phone: (210) 536-3403, (DSN) 240-3403 E-mail: miriam.ortiz@hqafcee.brooks.af.mil.



Wildlife Conservationist of the Year

The lead Biologist on Mobile District's Environmental Quality and Habitat Restoration Team was named Wildlife Conservationist of the Year at the 1999 Alabama Governor's Conservation Achievement Awards Program. These prestigious awards are presented to individuals or organizations who make great contributions to the conservation of Alabama wildlife and natural resources.

Mobile District biologist Glen Coffee (R) accepts award from Alabama Governor Don Siegelman

ENVIRONMENTAL MONITOR

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“A REGIONAL PERSPECTIVE”

During the past few months, the results of the various Department of Defense Pollution Prevention (P2) Partnerships within Region 4 are really beginning to pay dividends. Not only are communication lines opening; but real problems are being addressed. In fact, Region 4 is the only EPA region where a DOD P2 partnership exists in each State. As a result, a “regional” partnership is being formed to take advantage of the state partnerships and to offer even more opportunities. The first regional partnership meeting will occur at the Air Force’s P2 Workshop in San Antonio in December. While everyone seems excited about this opportunity, the real focus of the P2 partnerships in Region 4 remains at the state level — just as it should be. The regional partnership is just an added “benefit” where it works out.

The most recent news about the regional partnership is that EPA Region 4 has awarded a grant to the Pollution Prevention Assistance Division, Georgia Department of Natural Resources, for the purposes of establishing and supporting such a partnership. The grant is expected to be renewed annually for several years at the amount of \$50,000 per year. The installations have made it clear that they “just don’t have time to sort through all the information that is currently available.” As one person described the situation, “There is a tremendous amount of data that is already available. The challenge is how to translate that data into information and then into knowledge.” Hopefully, the regional partnership will be an invisible mechanism to help provide such benefits.

The P2 information exchange has already been enhanced by (1) the addition of State P2 partnerships to DENIX and (2) a separate list serve provided from the Waste Reduction Center. The next step is to establish some regional contracts that will make it easier for installations to execute the good P2 ideas such as recycled carpet, tub grinders, and wood waste.

A major benefit of the P2 partnerships is that they have helped the military to become more competitive in various awards competition. For example, Robins AFB recently received the Georgia Governor’s Award for P2 in the federal facilities category. In making the presentation, the Governor conveyed his gratitude for a “job well done.” Ft Stewart was an Honorable Mention in the same competition along with the Atlanta Post Office. The award ceremony was a great event and culminated the Georgia Military Leadership Forum, outlined in another article of this Monitor edition.

Within the past month, Parris Island, Marine Corps Training Center, also received the Governor’s Award for South Carolina. During the presentation of that award, the Governor’s representative commented that “Everyone knew that once the Marine Corps took on a mission that they would carry it out to the fullest!” Such comments really promote a great image of our Military Services. Without going into more detail for now, many other military installations have experienced similar successes. We’re also hopeful that some of these individual initiatives and successes will lead to regional efforts that can easily be accessed by everyone. With the heavy workload being asked of the installations, the key to success will be to keep it simple and relevant to the mission.

To me, the single most important factor for the success of these partnerships really rests with the P2 participants from EPA, the States, and the military installations/bases. These people have “can do” personalities and extremely positive attitudes — not easily discouraged. They are very focused, very dedicated, and continually look for realistic answers to real-world problems. One excellent example of this is the “Small Grants” program in South Carolina. In essence the program allows the military to tap into the great minds of various academic institutes to help solve their everyday problems. In fact, South Carolina has already financed several efforts in the \$3K-\$10K range and helped the military find solutions to numerous P2 challenges. Their “small grants” program provides a “win/win” situation that has attracted the interest of other partnerships across the country.

The best part of the State P2 partnerships is that each has its own personality and provides a unique opportunity to reinvent government for the benefit of the military and our environment. For example, in a later article, Ft. Rucker’s efforts to use a hydraulic fluid recycling unit may ultimately be the remedy for preventing “engine locks” in helicopters, thereby saving the lives of our soldiers as well as the aircraft. We always hear the cliché about “picking low hanging fruit.” The State P2 partnerships provide the nutrition for more “low hanging fruit” to grow back.



George A. Carellas
Department of Defense
Regional Environmental Coordinator

FEDERAL HEADLINES

Natural Resource Damage Assessment and Restoration—Interior and Defense

By W. Allen Robison, Ph.D., Toxicology
U.S. Fish and Wildlife Service, Southeast Region, Atlanta Georgia

Author's Note. This article provides a very brief introduction to Natural Resource Damage Assessment. More importantly it emphasizes the importance of early cooperation between Federal agencies to integrate damage assessment and restoration efforts into the cleanup and remediation efforts at Federal Facilities. It is focused primarily on Superfund site cleanups not spill response actions. Damage assessment and restoration efforts provide compensation for natural resource losses, not punitive penalties or fines.

Hazardous substances enter the environment and injure fish, wildlife, and other natural resources as the result of spills, improper waste management techniques, or un-permitted waste disposal practices. This can result from operations of private companies, contractors, or facilities operated by State or Federal government agencies (*i.e.*, Transportation, Defense, Energy). While the parties responsible are required to clean up hazardous wastes released to the environment, they may also be faced with compensating for the natural resources injured by such releases.

Natural Resource Damage Assessment and Restoration (NRDAR) provides a mechanism for determining compensation and restoration of natural resources injured by hazardous substance releases. Damage assessments are conducted by Federal, State and Tribal trustees for fish, wildlife, other living resources, water (surface and ground), lands, and protected areas. Injury assessment, damage assessment, and restoration are integral parts of this process. Injury refers to adverse impacts to natural resources, including loss of living natural resources; loss of availability to the public; and biological impacts (reproductive, developmental, behavioral, disease, etc). Damages refer to the compensation, either monetary or in-kind services, from the responsible party for injury to natural resources. Restoration refers to the efforts undertaken to repair, replace or otherwise make the injured natural resource whole again, and may include replacement, or acquisition of equivalent habitats (wetlands, reefs, waters, forests, etc.), populations (birds, endangered species, marine mammals, fishes, plants, etc.), or human services (access, recreational and commercial fishing, hunting, other outdoor recreation). As can be seen, there are biological, economic and legal aspects to damage assessment and restoration.

The legal foundation for damage assessment and restoration efforts by natural resource trustees is provided primarily by the Comprehensive Environmental Response Compensation and Liability Act (also known as CERCLA or "Superfund"), the Clean Water Act; and the Oil Pollution Act of 1990. Trustees can include Federal agencies, State agencies and Indian tribes. Components of the Department of Defense (Army, Navy, Air Force, etc) are trustees for the resources on their military installations. Agencies within the Department of Interior are trustees for lands under their management (*i.e.*, National Wildlife Refuges, National Parks, public range lands). Fish and Wildlife Service responsibilities go beyond land-based management to include jurisdiction over migratory birds, threatened or endangered species, anadromous and inland fisheries, certain marine mammals, and habitats for these resources.

Cleanup and remediation of hazardous substances in the environment involves characterizing the nature and extent of contamination, and removing or reducing the contamination to concentrations which protect human health and the environment. NRDAR basically involves determining compensation for injuries to natural resources that are not addressed by cleanup and remediation. The basic components of NRDAR include determining whether a release has occurred, identifying the contaminants of concern, determining whether a trust resource is present, evaluating exposure pathways, characterizing the nature and extent of injury, identifying necessary restoration measures and costs, and restoring the injured natural resources.

Integrating these efforts to the extent practical is important because it can minimize duplication of effort, identify data needs and gaps, help guide cleanup and remediation efforts, refine damage assessment and restoration efforts, and often reduce costs. The best way to accomplish this is to contact trustee agencies and tribes early in the cleanup/remediation process so they can assess trust resource concerns related to your site or project early in the remediation process. For DOD sites in the Southeast, this would likely involve trustee participation at one of the three tiered organizational levels which have been established.

To ease the initial coordination of these activities with the Fish and Wildlife Service in the Southeast Region, you can visit our web site (<http://www.fws.gov/r4eao/>), click on Ecological Services, click on Index to Ecological Services Offices, and then contact the office that covers the area where your project is located. These offices can provide the expertise needed to evaluate the occurrence of trust resources in the vicinity of your site, identify important habitat areas, and help determine the need for additional trustee involvement.

Spent Lamps Are Hazardous Waste!

By Tom McCarley, September - October 1999 HTIS Bulletin
Vol. 9, No. 5

The long awaited designation has been made. Most fluorescent and other lamps with toxic heavy metals, such as mercury and lead, are identified as hazardous waste as they oftentimes fail the Toxicity Characteristic Leaching Procedure (TCLP, EPA Method 1311), that is called for in 40 CFR 261.24. Most fluorescent lamps will now be classified as D009 hazardous waste and must be managed under either full hazardous waste management regulations or under a subset of these regulations at 40 CFR 273 known as "Universal Waste". Lamps potentially regulated under the July 6, 1999 final rule include mercury-containing fluorescent, high intensity discharge (HID), mercury vapor, metal halide, high pressure sodium, and ordinary incandescent lamps, which are now added to the realm of EPA universal wastes in an attempt to encourage their recycling.

The term "most" lamps is used because several lamp manufacturers have invested heavily in developing a fluorescent lamp with such low mercury concentration that they do not fail the TCLP limit of 0.2 ppm leachable mercury. Low-mercury fluorescent lamps that do not become hazardous waste when spent are available through the Federal supply system by contacting the lighting supplies office at Defense Supply Center Philadelphia at 1-800-DLA-BULB. The traditional fluorescent light tube has an average of 12-15 mg Mercury per linear foot of tube. The newer generations of lamps have only about 1/3 of that amount.

The 26-page final rule has been nearly 20 years in the making and becomes effective January 6, 2000. Much time, effort, and money have been expended in studying the issue of how to test and classify spent fluorescent tubes. Because it is difficult to get representative samples for leachability purposes, tests of lamps from all of the major manufacturers have yielded widely variable results with many samples failing the TCLP test and thus being classified as leachable mercury hazardous waste (waste code D009). During the time fluorescent lamps were being studied, individual states developed their own specific hazardous waste regulations for fluorescent tubes, some of which are based on numbers of spent lamps generated per day. The EPA's proposed rule for mercury-containing fluorescent lamps was issued on July 27, 1994. The proposed rule forwarded several potential management scenarios including outright exemption as well as management under the Universal Waste provisions.

The issue has been so complicated and controversial because now any ordinary office building may become a generator of hazardous waste. Although the amount of mercury in a fluorescent lamp may be relatively small, the approximately one billion lamps disposed per year can create a significant amount of highly toxic mercury. While EPA's, Office of Solid Waste is declaring these fluorescent lamps hazardous waste, EPA's highly successful voluntary program, "Green Lights", encourages facilities to relamp to the more energy efficient fluorescent lamps (<http://www.epa.gov/greenlights.html>). The EPA has a publication, "Lighting Upgrade Manual", EPA 430-R-94-001, dated February 1997, which contains a discussion of fluorescent lamp disposal issues and a handy list of lamp recyclers. This manual may be obtained by contacting the Green Lights Program office at 1-888-782-7937.

Ordinary incandescent light bulbs generally contain a base containing lead solder. The EPA does not expect such bulbs to add significantly (less than 2% of all regulated waste lamps) to the waste that regulated entities generate and **such bulbs are not emphasized in the final rule, but they are not excluded. Any spent lamp failing the TCLP is covered by the rule.** The EPA defines lamp or universal waste lamp as: "The bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps". In this article, terms such as "mercury-containing" and "fluorescent" are used to refer to the wide scope of lamps covered by the final rule.

Spent mercury-containing lamps sent for reclamation are spent materials under the 40 CFR 261.2 matrix, which helps define what constitutes a regulatory solid waste. Once a material is designated as a solid waste, the generator must make the determination whether the waste is a hazardous waste by listing or characteristic. EPA estimates that mercury-containing lamps account for 3.8% of the mercury going into the nation's landfills.

References:

1. Federal Register, Vol. 64, No. 128, pp36465-36490, July 6, 1999.
2. Federal Register Vol. 60, No. 99, pp25492-25551, May 11, 1995.
3. Federal Register, Vol. 59, No. 143, July 27, 1994.
4. EPA Press Release "Fluorescent Lamps Containing Mercury", June 28, 1999.

Land Use Controls in a Nutshell

By Bernie Schafer, Senior Navy Counsel, Office of the Assistant General Counsel
Reprinted from the USMC Region 4 Regional Advisory, Volume 3 Issue 3 Third Quarter 1999

Senior Navy Counsel Bernie Schafer presented an informative brief on Land Use Controls (LUCs) at the North Carolina/DoD Restoration Workshop (June 1999). The table below, provides examples of institutional and engineering control applications.

To understand LUCs, a few definitions are essential

Land Use Controls (LUCs): Those "institutional controls" (ICs) and any underlying "engineering controls" (ECs) put in place at cleanup sites, as a result of our selection of a cleanup remedy. **LUCs = ICs + ECs.**

Institutional Controls (ICs): Those legal mechanisms that insure that any restrictions on land use, and any engineering controls put in place to implement the selected remedy, are maintained. It is possible for there to be ICs without any ECs where, for example, the human health or ecological risk assessment has determined that no response is necessary if the property is used for nonresidential purposes, or, if for residential purposes, with limitations on the scope of residential use. If there are ICs, there will likely be a need for recurring 5-year reviews to insure the ICs are still effective.

IC examples include:

- Affirmative easements appurtenant Affirmative easements in gross
- Negative easements appurtenant Negative easements in gross
- Affirmative covenants
- Restrictive covenants

- Equitable servitudes
- Notices
- Zoning and notations in Installation Master Plans
- Construction and dig permits
- Education
- Inspections and reports to verify the ICs and ECs are being obeyed

It should be noted that inspections and reports are a step removed from what ICs are intended to achieve. They are more in the realm of management or enforcement controls. As such, they should be viewed as different from the other types of ICs on this list.

Engineering Controls (ECs): Those physical mechanisms that implement the remedy selected for the cleanup of the site. If there are engineering controls, there almost undoubtedly will be a need for ICs and 5-year reviews.

EC examples include:

- Fences
- Signs
- Caps (dirt, bentonite, gravel, grass, bark)
- City water
- Slurry walls (vertical caps)
- Pump & treat systems to contain (or treat)
- Long term monitoring
- Air sparging systems to contain (or treat)
- Guards, surveillance equipment, etc.

Example 1	Example 2	Example 3	Example 4
Institutional Controls with no underlying Engineering Controls	Institutional Controls with underlying Engineering Controls	Conditions imposed on the Lead Agency or transferees to insure that any ICs or ECs are actually enforced	Conditions imposed on the use of the Property where there is no IC or EC required in the cleanup decision
Based on a human health or ecological risk assessment, a remedy is selected that is premised on restricting the use of the property to nonresidential uses, whether industrial, commercial, recreational or agricultural; or restrictions are placed on the residential use of the property (e.g., no use of groundwater).	Use is restricted to protect the engineering control. Use may also be restricted based on a human health or ecological risk assessment, where a remedy is selected that is premised on restricting the use of the property to nonresidential uses whether industrial, commercial, recreation or agricultural; or restrictions are placed on the residential use of the	For example, quarterly inspections, yearly reports, coordination of all future land use changes, dispute resolution over the enforcement of any of these enforcement conditions. In general, the types of terms agreed to with Florida and EPA Region 4 in the recently signed MOA.	Where there are no ICs or ECs, yet a regulator demands that the owner/operator be restricted in their use of the property to satisfy a compliance issue (NOT CERCLA) that the regulator is concerned about. For example, in a transferring scenario where a regulator demands transferees must clean up LBP in nonresidential property IF the property is ever
Can appear in RODs at non-transferring facilities and RODs and deeds at transferring facilities.	Can appear in RODs at nontransferring facilities and RODs and deeds at transferring facilities.	Can appear in a MOA, or a modified FFA/IAG (if no penalties or citizen suits) at nontransferring facilities, but not in the ROD; at transferring facilities, only limited enforcement conditions should be agreed to, and even then, only as between the transferor and transferee, in the deed, and not in the ROD.	Whether transferring or not, should never appear in RODs, deeds, MOAs, or an FFA/IAG. But at transferring, can be in a deed only for purposes of putting on notice the transferee of the existence & location of asbestos, LBP, etc.

(Continued from page 1-Governor's Conference)

only 21 percent of U.S. voters think there is too much environmental regulation.

Growth in Georgia is another unavoidable trend.

"Growth strains natural resources," Mr. Reheis said. "And there is no end in sight. We have problems we didn't have 20 or 30 years ago."

One of those problems includes air quality, especially ozone non-attainment areas. "We will be seeing this spread from Atlanta to Macon and Augusta in the near future."

Another trend Reheis sees is fewer environmental laws but continued regulation.



MG Geoffrey Miller, FORSCOM, and Bob Kerr, GA P2AD Director, discuss the military's P2 achievements.

"We're not going to see much more change in environmental laws. They're strong and tough to change," he said. "It took from 1977 to 1990 for Congress to make changes to the Clean Air Act. Federal regulation will continue to evolve and get tougher. An estimated 70 percent of federal permitting programs are delegated to the states now, and in Georgia it's almost 100 percent."

One favorable trend Reheis sees is the growth of good corporate citizenship. "Compliance is now taken as a given. The shift is now moving from reactive to proactive response."

FORSCOM Deputy Chief of Staff for Personnel and Installation Management (DCPSIM) Major General Miller echoed Reheis' theme by emphasizing the military's role as a good neighbor. "We want to be part of the environmental team," he said. "We take that as a serious mission."

MG Miller also talked about FORSCOM's Campaign Plan toward meeting environmental requirements in the next 20 years and the fact that great strides have already been made. In 1990, there were 690 reported Open Enforcement Actions written while in 1999 there

have only been 11.

"This is a journey, not a destination," he said.

P2AD Assistant Director Bob Donaghue reviewed the brief history of the Pollution Prevention Partnership and the progress of the four Work Teams in place. He reviewed a number of projects taking place around the state, including an effort to set up a project involving carpet recycling instead of using landfill space when disposing of old carpet.

A roundtable discussion was then opened with Bob Kerr, P2AD Director, acting as moderator. It was a time to share success stories and express concerns about what participants are seeing and experiencing around the state.

One common theme that came up among installation commanders was concern over the increased push to outsource projects and activities. COL William Kane of Dobbins Air Force Base noted that ensuring that outside contractors are complying with environmental guidelines can be a difficult task.

Mr. Frank De LaSierra, USACE Savannah District, stated "There have been major environmental successes achieved through partnering at the installation, state and regional level." Several attendees echoed those successes and stated a desire to expand partnering to other program management areas to include regulatory compliance.

SREO Chief George Carellas said, "What a great event... the top leaders in Georgia meeting with military commanders on environmental issues in a proactive manner, and it wasn't even a crisis that caused it to happen."

The Governor's Pollution Prevention Awards Ceremony-Luncheon immediately followed the forum, with over 200 people in attendance. The awards recognize the achievements of Georgia businesses and others that demonstrate outstanding leadership and commitment to Georgia's environment through innovative pollution prevention efforts.

Before presenting the awards, Governor Roy Barnes talked about how Georgia's public and private sector must work in a collaborative effort to meet environmental goals. He spoke of



Mr. George Carellas, DoD Region 4 Environmental Coordinator, and Mr. Ray Fatz, Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health (DASA (ESOH)), enjoy the first GA Military Leadership Forum.

(Continued on page 8)

(Continued from page 7-Governor's Conference)

viewing Atlanta and its suburbs from a helicopter recently.

"It doesn't take long to get outside the Atlanta area to see the use of green space," he said. "There are squares stripped of every tree in the subdivisions and streets being laid out. In the long term, this is penny wise and pound foolish."

He also addressed other problems caused by Atlanta's incredibly rapid growth in recent years, especially air quality and transportation issues.

"In 25 years, the Atlanta region could easily be a population center of 7.5 million people. That's the population of New York City today," he said. "Infrastructure is not built overnight. It takes time and planning. It won't happen unless we work together to use every tool in the toolbox."

"Those we recognize today already know this," Barnes said.

Robins Air Force Base was the Governor's Award Winner in the Government/Academia category, recognizing their comprehensive pollution prevention program.

Their program includes ozone depleting solvent (ODS) elimination, EPA-17 chemicals and hazardous waste reduction, air improvement initiatives, municipal solid waste reduction, and material management improvements.

For ODS elimination, an automated circuit board cleaning process replaced an aqueous cleaner that eliminated use of CFC-11, reduced production time by 25 percent, and cut costs up to 50 percent.

In addition, a medium pressure water/bicarbonate of soda stripping system replaced the use of 1.5 million pounds of methylene chloride to depaint aircraft. This resulted in an 88 percent decrease in the use of toxic chemicals by the end of 1998, saving Robins about \$790,000 a year.

Wastes were reduced by 58 percent in 1998 at Robins, with 46 percent of it coming from the recycling and reuse. Robins generates about 3,500 tons per year of yard waste and 150 tons of horse stable waste which is now being composted through a partnership. Of the finished compost, 25 percent returns to Robins for use in base beautification projects.

In the same category, 3rd Infantry Division (Mechanized) and Fort Stewart were awarded an Honorable Mention for developing an extensive hazardous materials management program, allowing activities to reduce waste generation.

Fort Stewart's Hazardous Materials Management Center accepts excess hazardous materials and redistributes them to units needing these materials. Lead-acid batteries and fluorescent bulbs are also recovered and recycled.

Maintaining thousands of vehicles, Fort Stewart minimized its oil filter volume by installing an oil filter crusher in every motor pool. In addition, approximately 7,600 soldiers have been trained in hazardous waste and pollution prevention courses in the last 2.5 years.

Because of Fort Stewart's efforts, they achieved an almost 79 percent reduction in hazardous wastes along with an estimated cost savings of \$161,000.

Other Governor's Award winners included Golden Sate Foods, Conyers, Ball Metal Beverage Container Corporation, Moultrie, Shaw Industries, Cartersville, and Beers Construction Company.



GA Gov. Roy Barnes (End-R) and GA DNR Comm. Lonice Barrett (End-L) present Mr. Tom Fry, Acting Chief, Environmental Management Branch, Ft. Stewart (Center-L) and COL William Betson, Garrison Commander, Ft. Stewart (Center-R) with an Honorable Mention for the 1999 Governor's Award in the Government/Academia category for Pollution Prevention.

SUCCESS STORIES

Fort Campbell's Emergency Planning And Community Right To Know Act Form-R Reporting Requirements Eliminated

By Elaine L. Hicks, Dyncorp Aerospace Technologies

The Emergency Planning and Community Right To Know Act (EPCRA) was enacted in 1986 as a direct result of toxic chemical spills of methyl isocyanate that occurred in India and West Virginia in 1984. These events prompted the Federal government to create and implement several regulations pertaining to hazardous materials, hazardous wastes, and toxic chemicals being used in communities by nearby manufacturers. In 1993, Executive Order 12856 was signed by President Clinton, which contained the following directives for Federal Facilities:

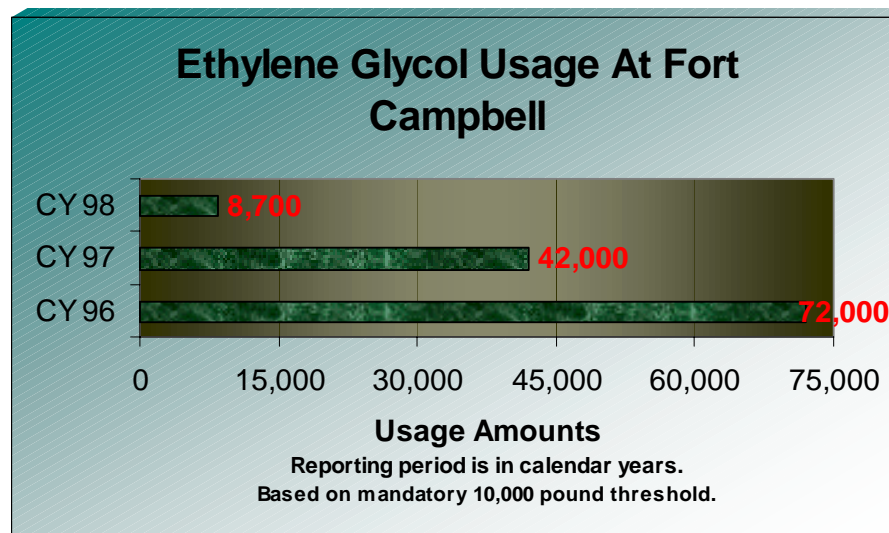
1. Develop Pollution Prevention plans to reduce waste by 50 percent.
2. Collect and report data on the quantity of hazardous materials and toxic chemicals stored, used, and released at the facility.
3. Ensure public access to use/release information
4. Reduce the amount of any hazardous substance entering any waste stream
5. Apply equipment and product modifications to include environmentally safe products and increase recycling programs
6. Pollution that cannot be prevented at the source should be recycled in an environmentally safe manner.

Compliance with Executive Order 12856

To ensure compliance with the reporting requirements of Executive Order 12856, the Emergency Planning and Community Right to Know (EPCRA) Reporting Section was formed under the umbrella of the Pollution Prevention Branch, Pollution Prevention Operations Center (PPOC). The PPOC mission is to ensure proper management for the requisition, receipt, distribution, and storage of all hazardous materials, hazardous wastes, and recyclable fuels/oils at Fort Campbell. This is accomplished through complete Life-Cycle Material Management.

EPCRA also established a series of chemical reporting requirements that included notifying the public and local and state governments of hazardous chemical releases. Each year, facilities must submit a Form-R report, *by 1 July*, detailing usage of hazardous and toxic chemicals use for the previous calendar year. The chemical reporting requirements include toxic chemical inventories. Any facility that stores and uses any of the listed chemicals in quantities equal to or greater than its threshold quantity is subject to the reporting requirements. Due to Fort Campbell's mission and utilization of heavy-wheeled vehicles, past reporting entailed releases resulting from chemicals such as Dichloromethane, Methane, Ethylbenzene, Xylene, and Ethylene Glycol (antifreeze).

Closed Loop System



The Antifreeze-recycling program is an excellent example of compliance with Executive Order 12856. It is through the management of hazardous materials and especially the recycling of antifreeze that Fort Campbell was not required to submit a Form-R for calendar year 1998. The Form-R was to be submitted to the EPA by 1 July 1999 for calendar year 1998 usage of hazardous materials/toxic chemicals that exceeded threshold limits.

In 1997, the PPOC assumed control over antifreeze-recycling equipment

(Continued on page 10)

(Continued from page 9-Ft. Campbell)

previously maintained by the Readiness Business Center at Fort Campbell.

PPOC personnel then made adjustments to the process and added additional quality control procedures to include a three-stage filtration and a distillation system. The combination of these systems allows the dirt, grime, and sludge to be removed from the used antifreeze. The distillation system then removes the water and impurities from the Ethylene Glycol, allowing personnel to mix it with appropriate levels of potassium hydroxide and antifreeze fortifier. On-site testing allows the PPOC Waste Technical Inspector to accurately measure freeze points and pH levels. Samples of the 500-gallon batch of recycled antifreeze are then sent for testing by the Army Petroleum Center. Upon completion of the tests, the product is packaged in 1, 5, and 55-gallon containers, labeled, placed in inventory, and then issued for use through the PPOC's Hazardous Materials Control Center. This 'closed loop' system has effectively reduced the need for off-site disposal. Fort Campbell's PPOC's recycling efforts have led to the same antifreeze being utilized, recycled, and re-issued, while providing the soldier with a serviceable product that meets all military specifications at a reduced cost.

Fort Campbell has seen a reduction in off-site disposal of Ethylene Glycol from 75,000 gallons in calendar year 1996 to 8,700 gallons for reporting year 1998. Since the inception of the PPOC in 1997, 16,748 gallons of antifreeze have been recycled. The reductions achieved in the use of toxic chemicals are accredited to aggressive material substitution, source reductions, inventory assessments, and process modification changes, which have immensely improved compliance, and **have eliminated EPCRA Form-R environmental reporting requirements for Calendar Year 1998**. Although Form-R reporting requirements have been eliminated, hazardous materials/toxic chemicals inventories must and will be maintained.

Ar my Coor dinating Mul ti-Ser vice Val idation of Sol vent Sub stit ues

Defense Environment Alert, 5 October 1999

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The Army has launched a multi-service validation program for aqueous solvents, in order to certify that non-toxic cleaners wash parts without corrosion or rust, Army sources say.

The Navy, Air Force and Marines are currently reviewing the Army-developed protocol for the Alternative Cleaner Performance Validation Program to verify the performance of a wide variety of aqueous solvents, an Army source says. And the Army is finalizing a Commerce Business Daily posting inviting private industry to participate in the testing, the source says.

The testing of the solvents will be jointly funded. Solvent manufacturers will pay for the tests of their specific products, while the Army will maintain overall test capabilities and purchase materials needed to conduct the test, sources say.

The program is a follow-on to a limited 1998 Army study of the Chemfree enzyme-based aqueous solvent. That study was prompted by Army Forces Command allegations that the cleaner caused rust and corrosion of critical parts.

Army sources say there are a number of reasons for the program, including the current impetus to use more environmentally-friendly solvents. Many installations purchase solvents that the Defense Logistics Agency has classified as environmentally friendly, but these products have not always been proven to meet military-specific performance requirements, sources say.

In 1998, more than 40 Army installations sought money for alternative cleaning systems through the pollution prevention investment fund, sources say. Products that become certified through this validation program will then be eligible for purchase with pollution prevention investment fund dollars.

Other factors pushing the program include significant concerns that continue to exist in the commodity manager communities over the aqueous solvents' proclivity for causing rust and corrosion, and the fact that there is currently no systematic approach or uniform process within the Army or DOD to validate these cleaners, the Army source says.

Vegetation Mapping at Fort Stewart

By William Rutlin, Fort Stewart LCTA Coordinator
Reprinted from The ITAM Bridge, Summer 1999

Fort Stewart initiated vegetation mapping efforts in 1995. During 1995, personnel delineated vegetation communities on 1:20,000 scale infrared National Aerial Photography Program (NAPP) photographs and established LCTA Braun Blanquet/relevé plots to represent various community types across the installation.

The Braun Blanquet methodology adopted by Fort Stewart provides detailed information on vegetation community, structure, and composition and is ideal for vegetation mapping. The relevé plot (i.e., stand sample plot) allows the LCTA field crews to develop a complete description of a vegetation community, by including a record of all plant species associated with different vertical layers. (i.e., the tree, shrub, and herbaceous layers)

During 1996 and 1997, the LCTA team continued to delineate vegetation communities using the NAPP photos and digitized the delineated communities using GRASS GIS software. In the field, LCTA crews worked to establish about 1000 relevé plots across the installation.

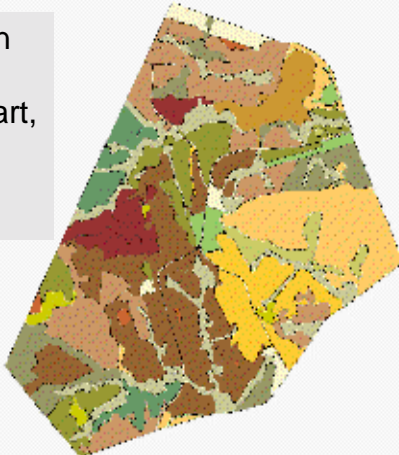
During 1998, LCTA field crews were busy monitoring the LCTA plots. Initially, the field crew visited 200 plots. The plot data supplemented other data collected at Fort Stewart (e.g., data regarding disturbances, land use, maintenance activities, erosion, ground cover, basal area, total canopy cover) and was used to assess changes in land condition. The teams also were able to orthorectify and convert to a digital format infrared and true color aerial photographs of Fort Stewart.

During 1999, the Fort Stewart LCTA team will continue with efforts to complete the vegetation maps. Using data from the relevé plots and/or the converted aerial photos, the LCTA team will visually inspect, edit, and label the vegetation communities originally delineated between 1995 and 1997.

Once communities are accurately delineated and named, Ft. Stewart will be able to produce maps. The maps will have a universally understood classification scheme that benefits mission-related natural resources and training activities and that provides the ITAM Program and the Fish, Wildlife, and Forestry departments with valuable information to:

- Locate potential wetlands and endangered species habitats.
- Estimate erosion and degradation impacts associated with military training.
- Plan range expansion and construction projects.

Vegetation
Map
Of Ft. Stewart,
Georgia





ENVIRONMENTAL MONITOR

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